

An Improved Core Methodology

By Nicholas John Avdellas

Introduction

During the past 15 years, as the Department of Defense (DoD) has implemented a far-reaching policy change to increase its reliance on the private sector, the debate over who performs DoD depot maintenance and overhaul, and where that activity should occur, has been considerable. A high-level description of this policy debate pits advocates of outsourcing with the U.S. Congress that supports public provision of depot maintenance in order to protect critical national capabilities and the economic interests of large communities. While each point of view is well founded and compelling in its own right, each has proven somewhat limited, creating a situation in which little strategic dialogue has occurred about how to set a strong foundation for the current and future depot repair needs of the nation's military. A key component of this dialogue is the DoD's core methodology, which provides the means to determine whether a given weapon system should be supported with public maintenance capability, and to what extent. A revision to this core methodology, endorsed by the Office of the Secretary of Defense (OSD) in October 2001, suggests positive and necessary incremental change in this turbulent policy arena.

The basis for this article is the DoD Core Depot Maintenance Policy/Methodology Report, which was published in May of 2001. The report provided the DoD with fresh insight and a range of improvement

alternatives regarding the DoD depot maintenance core methodology.

The study team also evaluated the underlying rationale for DoD core maintenance requirements in light of current commercial support capabilities.

Depot Maintenance Provision and Core

Depot maintenance is a substantial part of the U.S. national security and industrial base that consumes resources valued at \$14 billion to \$16 billion annually. The majority of the DoD depot maintenance workload is done in support of ships and aircraft, each of which accounts for about 40 percent of the total workload. The remaining 20 percent includes workload done in support of missiles, combat vehicles and other ground equipment systems.

Today about 53 percent of all depot maintenance workloads are performed at organic (i.e., Government-owned/Government-operated) depots. Because most of these facilities are among the largest employers in their respective states or regions, they have significant impact on their local economies, and their employees constitute powerful political constituencies. Since the end of the Cold War in 1989 the DoD has been downsizing its organic depot maintenance infrastructure, primarily through the base closure and realignment process. This process is now complete and only 19 of the 38 major organic depots that existed in 1988 will remain in operation as Federal Government activities. However, several

of the closing depots are being converted into commercial industrial activities that will continue to support DoD depot maintenance requirements. About 65,000 Federal employees are currently employed at the remaining organic depot maintenance activities (less than half of the 156,000 employed in fiscal year 1987 (FY87)). Fiscal year 2001 organic depot maintenance support costs (including direct labor, material and overhead) are expected to total about \$7.7 billion.

The remaining 47 percent of depot maintenance workloads (valued at \$6.8 billion in FY01) are performed by more than 1,300 U.S. and foreign commercial firms that range from original equipment manufacturers (OEMs) with thousands of employees and extensive capabilities to small "job shops" with only a few employees and limited industrial capabilities. Between these two extremes lie a number of commercial depot maintenance facilities with capabilities that are similar to those available at the organic depots, although typically more specialized. Private-sector maintenance activities now support numerous DoD systems and provide a relatively comprehensive industrial base for many categories of DoD repair work.

The considerable range of depot maintenance capabilities available to meet DoD requirements suggests that a large degree of choice should drive decisions for maintenance provision. However, a strict legal framework has been established to ensure that repair capabilities are available to meet military needs in the event of a

national defense emergency. This framework employs a concept called “core” that is routinely used in business practice to guide decisions over whether functions would best be provided in-house or done by an outside source. In the private sector, for example, a business first employs core by evaluating its operations to identify functions that are critical to the performance of the mission of the business. These “core” activities are not evaluated for contracting out. Activities determined to be “non-core” are evaluated to ascertain if in-house performance can be improved and/or costs could be reduced.

A somewhat different concept of “core” is currently applied to DoD maintenance activities. In the depot maintenance setting the DoD is required under 10U.S.C. §2464 to identify and maintain within government-owned and operated facilities a core logistics capability, including the equipment, personnel and technical competence required to maintain weapon systems identified as necessary for national defense contingencies and emergencies. Specifically, the Secretary of Defense is to identify the workloads required to maintain the core maintenance capabilities and assign to government facilities sufficient peacetime workload to ensure cost efficiency and technical competence, while preserving capabilities necessary to fully respond to national defense emergencies and contingencies. The capabilities are to include those that are necessary to maintain and repair the weapon systems and equipment that are identified by the Secretary of Defense in consultation with the Joint Chiefs of Staff (JCS) as necessary to meet the nation’s military needs.

In recent years there has been considerable criticism of the requirement that depot maintenance core capabilities be provided exclusively by

organic depots (Government facilities, equipment and personnel). Many critics cite the changes that are taking place in the private sector as factors that should reshape the DoD’s need for core capabilities. These changes include the emergence of a robust range of depot maintenance capabilities - provided by both OEMs and third-party logistics providers - as well as the development of effective integrated supply chain operations. Critics urge that a focus on the supply chain could tie customers and suppliers more closely together for depot maintenance requirements, and sometimes effectively obviate the need for core capabilities.

Advocates for increased commercial support of depot maintenance requirements also point to the rapidly shrinking technological life cycle for commercial systems and the need for continual infusion of new technologies over a system’s life. Because the DoD is increasingly dependent on the private sector for these innovations, it is only natural, say the advocates, that military systems be supported with lifetime contract support.

There are also many supporters of DoD core-related policies and practices, including several congressional committees. These supporters point out that organic depot maintenance capabilities have proven able to rapidly increase output and to change priorities within a wide compass of potential, but inherently unpredictable, needs. Organic capabilities further provide a source of repair when the private sector has no economically viable interest in specific depot maintenance workloads, ensuring continued life-cycle support when commercial manufacturers go out of business or change product lines. Such capabilities also provide the Government with reasonable cost alternatives based on “smart buyer” knowledge and/or a second option in

otherwise sole-source situations. In an operational context organic capabilities provide for rapid dispatch of field teams for crash/battle damage repair and in-theater combat repairs. Senior depot maintenance managers remain concerned about private-sector ability to provide this depth of coverage.

The Core Methodology

In this context the DoD has implemented its core concept with a core methodology designed to determine which depot maintenance capabilities should be maintained in organic depots. The methodology requires each of the Military Services to identify the number and types of systems called for by the JCS warfighting scenarios and to compute organic depot-level maintenance capability requirements (measured in direct labor hours) for those systems. This process involves a determination of the skills, facilities and equipment needed to complete the associated workload to provide for these requirements.

In November 1993 the Office of the Deputy Under Secretary of Defense for Logistics first outlined the standard multi-step method for determining core requirements and directed the Services to use this method to compute biennial core requirements. In 1996 the core methodology was revised to include (1) an assessment of the risk involved in reducing the core capability requirement as a result of having maintenance capability in the private sector and (2) the use of a best-value comparison framework for assigning non-core work to public and private sectors.

The current core methodology provides a computational framework for quantifying core depot maintenance capabilities and the workload needed to sustain these capabilities. It

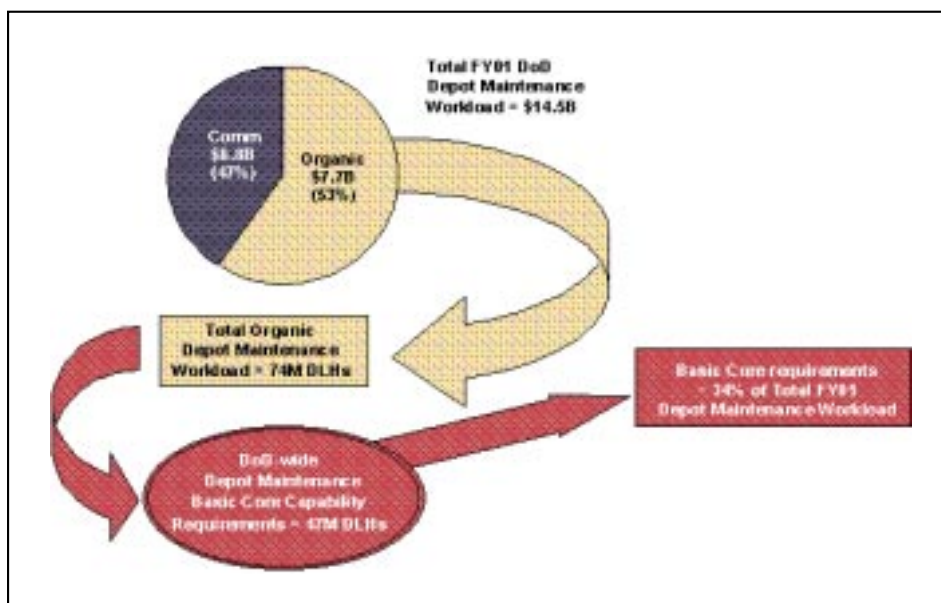


Figure 1.
Putting Core Requirements in Perspective

includes three general processes:

- The identification of the numbers and types of weapon systems required to support the JCS wartime planning scenarios,
- The computation of depot maintenance core work requirements needed to support the weapon systems' expected wartime operations and
- The determination of industrial capabilities (including the associated personnel, technical skills, facilities and equipment) that would be needed to accomplish the work identified above. That determination is adjusted to translate those capabilities into peacetime workloads needed to support them.

To conclude the process the Services then identify specific repair workloads and allocate the core work hours needed to accomplish the maintenance work at the public depots that will be used to support the core capabilities.

To illustrate the results of this process for FY01 the Military Components applied the depot

maintenance core methodology to identify DoD-wide basic core requirements that total 46.6 million direct labor hours. Putting this data into perspective, DoD-wide basic core requirements equate to about 34 percent of the total FY01 depot maintenance contract and organic workload, as illustrated in Figure 1. A chart, which illustrates the methodology used to calculate depot maintenance core capability requirements, is depicted in Figure 2.

Existing Difficulties with the Core Methodology

In order to provide the Department with fresh insight and a range of improvement alternatives regarding the DoD depot maintenance core methodology, Pricewaterhouse-Coopers and the Logistics Management Institute (LMI) were awarded a contract to perform an independent review of the process. The study team was also asked to evaluate the underlying rationale for DoD core maintenance requirements in light of current commercial support capabilities. During the course

of this study the team reviewed applicable public laws and DoD policies. The team also analyzed the Services' application of the depot maintenance core methodology and surveyed relevant contemporary business practices employed in both the public and private sectors. More than 50 senior subject matter experts from both the DoD and the private sector were interviewed during the study and a series of corporate case studies were selected for review to identify contemporary business practices.

The study team found that the core methodology does effectively identify a set of fundamental capability requirements consistent with support of the operating forces. The study also noted that the fundamental core application in the DoD is sound in that the Department is attempting to identify capabilities that support war-fighter needs and requirements. However, the study found a combination of procedural and strategic issues with the methodology, and these issues led to inconsistent application and an absence of linkages of the core methodology to DoD strategic planning processes.

The procedural and strategic issues noted by the study team support four high-level conclusions, which are summarized below:

- **The DoD's depot maintenance core policy is incomplete.** The current methodology is designed to compute core capability and work requirements biennially based upon fielded weapon systems identified in defense war planning scenarios. Consequently, there is a lack of a forward look at new and developing systems and related future maintenance capability requirements. The core policy does not require the consideration of depot maintenance capabilities for developmental systems and systems in early production, because these

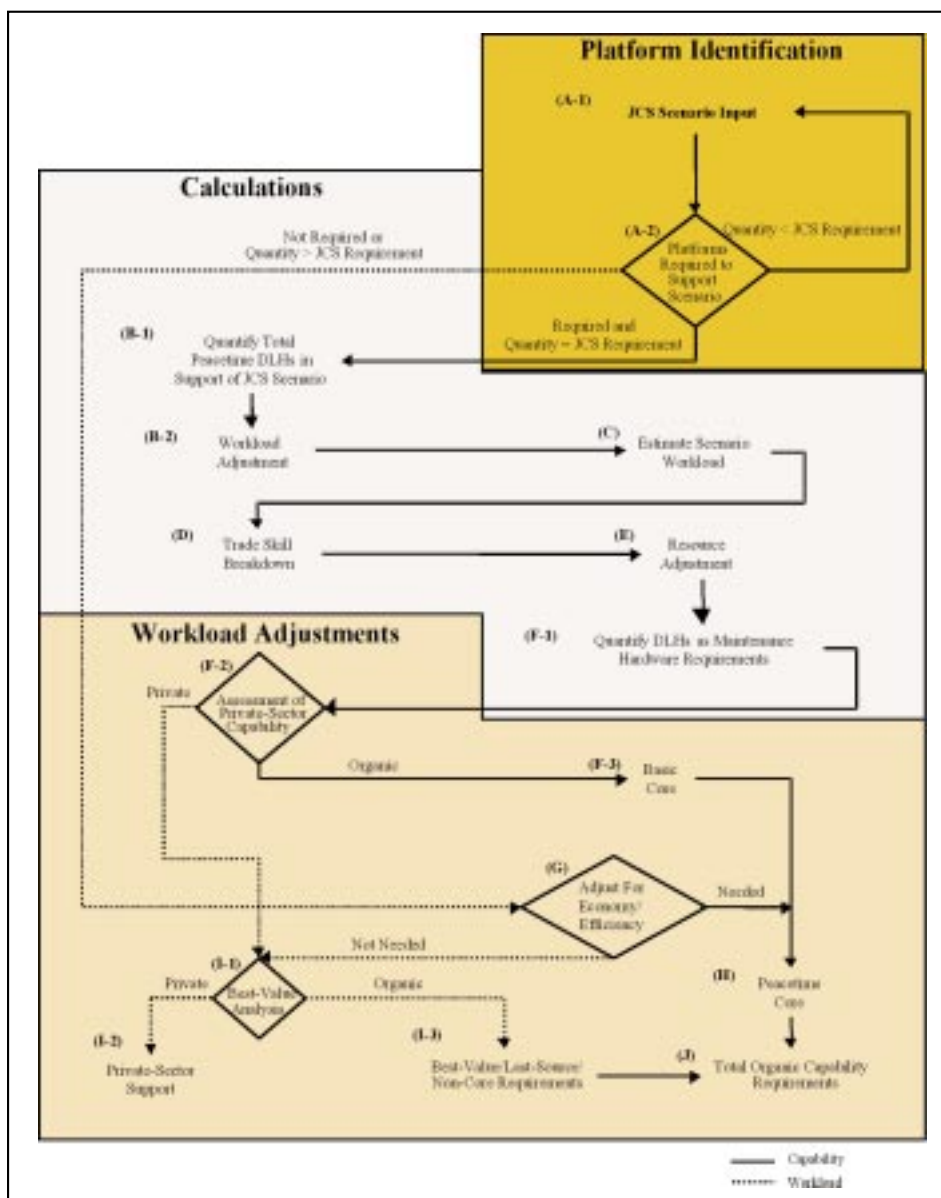


Figure 2.
The DoD Depot Maintenance Core Methodology

core support work assigned to the organic depots.

- **The core methodology is not routinely used in DoD decision-making and is not linked to the defense budget system.** The biennial core computation process operates largely as a stand-alone exercise and is not explicitly linked to the Planning, Programming and Budgeting system, and has little direct impact on resource allocation decisions and management priority setting. The identification of short-falls in core capability, for example, does not generate budget requirements for making capital investments in facilities, equipment and other resources needed to establish the capability.
- **Capability requirements are not effectively addressed in the context of strategic planning.** The core methodology is not currently used as a planning tool. It is not directly linked to the source-of-repair decision process for new systems and major system upgrades and, therefore, has not been a guide to investments in facilities, equipment and human capital to ensure the long-term viability of the Services' depots. There is also no planned or actual link of the output of the core methodology to the Department's Quadrennial Defense Review (QDR) process, which is a strategic review of its goals, objectives and capabilities.

A Revised Core Methodology

To address these conclusions the study offered suggestions for change that were expressed as a set of four complementary alternatives. In October 2001 the Office of the Secretary of Defense management selected the alternative that would streamline the existing core process and establish explicit linkage with the DoD Plan-

systems are not yet recognized in war plans. The lack of consideration of new and replacement workloads is important because of the advanced planning time needed to establish an in-house capability.

- **Service implementation of the methodology is inconsistent.** Different service interpretations of core procedures and practices are currently affecting the formation of core capability. Each Service devel-

oped its own set of tactics, criteria and assumptions to adapt the methodology to individual circumstances, and has different procedures and practices to implementing the core methodology and identifying and establishing core capabilities. This practice appears to reduce the development of core capabilities and, at the very least, results in differences in the ultimate core capability requirement computed by each Service and in the

ning, Programming and Budgeting system. The Deputy Under Secretary for Logistics and Materiel Readiness issued new guidance regarding the implementation of core depot maintenance policy and methodology. Also, a joint working group is being established to review the details of implementation procedures with final policy guidance to be issued by March 1, 2002.

This endorsement suggests better utilization of the core methodology as a tool to improve the strategic dialogue about how to set a strong foundation for the current and future depot maintenance needs of the nation's military. As the alternative is applied, it will provide greater visibility and rigor to the core determination process. Key enhancements of the methodology include a more clear differentiation of the determination of capability requirements and the workload required to support those requirements. The overall computation will also be produced on a detailed worksheet, which would be included in core data calls. Second, the methodology adds the Defense Planning Guidance as a source of future requirements, in addition to the JCS scenarios, to allow for inclusion of capability requirements for systems that are not normally considered in conventional theater scenarios, such as the nuclear deterrent force. Third, revised methodology provides a means to consider different surge factors for the phases of conflict, expressly treats inter-service workload transfers and adds places to consider legal constraints. Finally, the methodology provides for links to the Planning, Programming and Budgeting system, for out-year consideration as well as budget years.

How the Alternative Works

While detailed implementation procedures are currently being

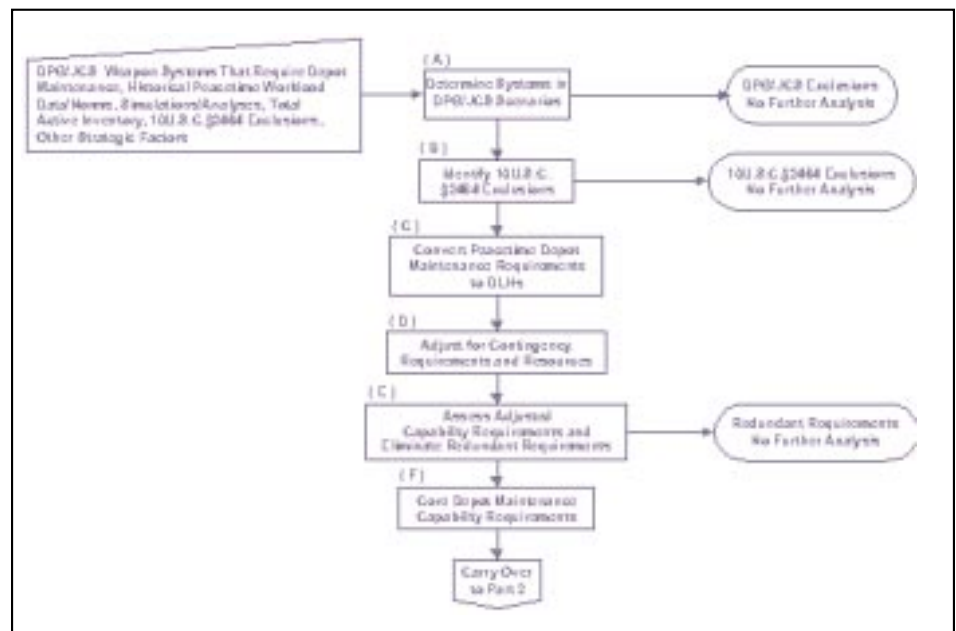


Figure 3.
Determination of Core Depot Maintenance Capability Requirements

devised by the Services, an overview of the methodology shows its two separate parts:

Part 1: Depot Maintenance Core Capability Requirements Determination includes all weapon systems and equipment operated by each DoD Component. As illustrated in Figure 3, the starting point is the Defense Planning Guidance, which defines the overall DoD force structure required to execute the JCS contingency scenarios. Next, applicable weapon systems are identified. For the remaining systems, annual peacetime depot maintenance capability requirements are computed in direct labor hours (DLHs).

Requirement and resource adjustments are then made to account for applicable "surge" factors during the different phases of a contingency (i.e., preparation/ readiness, sustainment and reconstitution). Overall depot maintenance capability requirements are then assessed to determine whether they include unnecessary redundancy. After unnecessary

redundancies have been eliminated, all remaining requirements are identified as core depot maintenance capability requirements, expressed in direct labor hours.

Part 2: Depot Maintenance Workload Allocation converts the depot maintenance core capability requirements identified in Part 1 into the depot maintenance workloads required to maintain those capabilities. The depot maintenance workloads that are needed to maintain core capabilities are subtracted from total depot maintenance workload requirements, leaving non-core workloads that can be allocated to either the public or private sector. Next, the DoD Components add or subtract core-related interservice workload requirements from the workload required to maintain their own core capability requirements in order to determine the total amount of core-related work that must be assigned to the organic depots. This depot maintenance allocation process can be used to identify depot mainte-

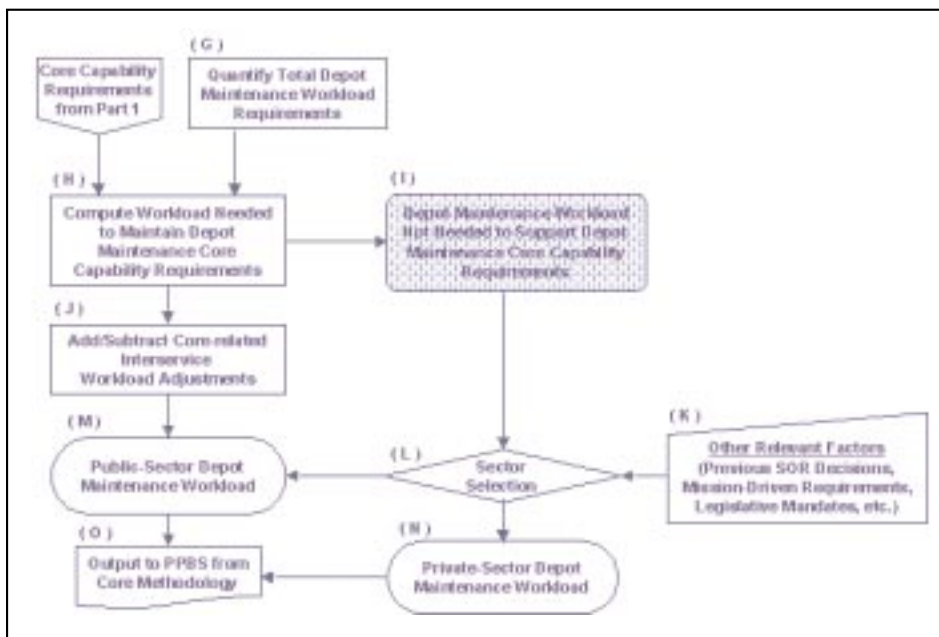


Figure 4.
Depot Maintenance Workload Allocation

nance capital investments that must be made to comply with 10U.S.C.§2464 requirements for establishment of core depot maintenance capabilities within four years of initial operational capability. Actual depot maintenance funding, however, would still be subject to the resource allocation decisions in the Planning, Programming and Budgeting process.

Implementation Considerations

This alternative will be relatively easy to implement because it conforms to current legislative requirements and involves computations that are similar to those currently being performed by the DoD Components. In this process OSD depot maintenance core data calls will specify four important requirements. First, depot maintenance core capability requirements must be determined for each platform/weapon system included in the Defense Planning Guidance force

structure supporting the JCS contingency scenarios. Second, all core capability requirements and related depot maintenance workloads must be aggregated in applicable work breakdown structure categories and documented on data summary spreadsheets. Third, core-related depot maintenance workload requirements must be compared with programmed/budgeted depot maintenance workload data to determine whether the programmed/budgeted workloads are adequate for cost-efficient workloading of core capabilities. Finally, each DoD Component headquarters must validate depot maintenance core data and explain the basis for any deviations from 10U.S.C.§2464 requirements in its core data submissions to OSD.

Outlook for Revised Methodology

The revised core methodology approved by the Department and discussed above has the potential to re-energize the political debate about

depot maintenance provision. The methodology is more rigorous and provides greater visibility of core capability calculations than the current methodology. These qualities will support the credibility of DoD claims on depot choices and will better illuminate the decision-making process to congressional overseers. From an internal DoD management perspective, critical depot maintenance capabilities will be identified from more of a strategic management perspective as they are linked to other DoD strategic management processes such as acquisition management, the Planning, Programming and Budgeting System, and ongoing enhancements to the Quadrennial Defense Review. This should support a more direct impact on resource allocation decisions and management priority setting as shortfalls in core capabilities signal budget requirements for making investments in facilities, equipment and other resources required establishing the capability.

Author's Biography



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